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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Frederic Berier

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EXAMINER

LAMPRECHT, JOEL

ART UNIT

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3737

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,519	Applicant(s) BERIER ET AL.	
	Examiner Joel M. Lamprecht	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 1-22 are objected to because of the following informalities: Regarding claim 1, "said optical beam" and "the optical axis" lack antecedent basis, and "optical means", and "mechanical-micro-system means" improperly invoke means plus function language, See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967) .

Regarding claim 2, "the slow scanning" and "the rapid scanning" lack antecedent basis.

Regarding claim 3, "MEMs means" and "the mobile optical means" improperly invoke means plus function language, and "a diametrically opposite manner and alternately" is incomplete as the alternative to diametrically opposite is unclear. Regarding claim 4,

"the optical beam" "said divergent beam" and "the subsurface focusing point" lack antecedent basis, and "the optical means", "successively first means", and "second optical means" improperly invoke means plus function language. Regarding claim 5, "first optical means" improperly invokes means plus function language. Regarding claim 6, "two of the optical means" improperly invokes means plus function language.

Regarding claim 7, "piezoelectric-type means" improperly invokes means plus function language, and "the excitation beam" and "the second scanning direction" lacks antecedent basis. Regarding claim 8, "the second scanning direction" lacks antecedent basis and "piezoelectric means" improperly invokes means plus function language.

Regarding claim 9, "the optical axis" and "said positioner" lack antecedent basis and "the piezoelectric means" and "the optical means" improperly invoke means plus function language. Regarding claim 10, "the specimen" lacks antecedent basis.

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Regarding claim 11, "micro-mechanical means" and "optical means" improperly invoke means plus function language. Regarding claim 12, "the second optical focusing means" lacks antecedent basis and improperly invokes means plus function language, "the MEM means" improperly invokes means plus function language, and "the movement" and "the optical beam" lack antecedent basis. Regarding claim 14, "the terminal part" and "the emergent beam" lack antecedent basis. Regarding claims 15, and 17 "as large a numerical aperture as possible" and "a tight window" are objected to as failing to distinctly point out and claim what applicant regards as their invention, and it is unclear how the elements of claim 15 allow for "spatial filtering" and the elements of claim 17 allow for "an index matching" as claimed. Regarding claim 17, "the specimen" lacks antecedent basis. Regarding claim 18, "the focused optical beam" lacks antecedent basis, and it is unclear as to how the window as claimed has a "refractive power function" as claimed. Regarding claim 19, "the optical means" improperly invokes means plus function language. Regarding claim 20, "electronic and data processing means" improperly invokes means plus function language. Regarding claim 21, "coupling means for coupling" is redundant and improperly invokes means plus function language, additionally, applicant has not positively set forth TWO fibers as claimed on lines 3 and 4, making it unclear as to the structure and connections provided by the "means for coupling". Regarding claim 22, "the optical head comprising" should read "the optical head comprises", "flexible linking means" and "signal processing means" improperly invoke means plus function language.

Appropriate correction is required.

Drawings

The drawings are objected to because the boxes are not properly labeled. Reference numerals alone are insufficient. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 20-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. Regarding claim 20, it is unclear as to how the source capable of emitting an excitation beam differs from the source which is set forth in claim 1. Regarding claim 21 it is unclear as to how the laser source differs from the previously set for source in claim 1 or 20 and it is unclear as to the structure defined in lines 2-4 as there are not multiple elements positively set forth, but multiple elements are claimed in the same manner. Regarding claim 22, it is unclear as to how the VCSEL source differs from the source set forth in claim 1 or 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seibel (US 6,975,898 B2) in view of Barbato et al (US 2003/0130562 A1). Seibel discloses a miniature confocal optical head for a confocal imaging system (Col 6 Line 65- Col 7 Line 50) with a point source to produce a beam, optical means for causing the beam to converge into an excitation point perpendicular to the optical axis, means for scanning to describe a field of view in two perpendicular directions (Col 10 Line 20 – Col 11 Line 45), rapid line scanning and column scanning, and the inclusion of MEMs capable of moving along a chosen displacement (Col 11 Line 45-Col 12 Line 65), the

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capability to both scan slowly and in real time (Col 17 Line 15-45), the inclusion of a divergent optical beam and optical means for transforming the beam into a parallel beam and focusing the beam onto the focus point (Col 18 Line 30-65, Col 11 Line 25-Col 13 Line 65), as well as mobile optical means capable of slow column scanning. Seibel also discloses having both optical means as mobile for the purpose of being moved in a direction perpendicular to the optical axis to define a scanning direction (Col 11 Line 25-45, Col 12 Line 45-Col 14 Line 40), the source is mobile, fixed to a piezoelectric means which can move the excitation beam, the use of a piezoelectric positioner extending along the optical axis of the head (Col 13 Line 35 – Col 16 Line 10), means for modifying the depth of the subsurface observation plane (Col 17 Line 45 – Col 18 Line 10), including MEMs means capable of moving the optical focusing means to move along the optical axis of the beam (Col 12 Line 1-Col 15 Line 40), the terminal part of single-mode optical fiber capable of guiding the excitation signal from an external source (Col 15 Line 35-65), allowing for spatial filtering of the return signal to comply with the confocality of the head (Col 19 Line 60-Col 20 Line 52, Col 15 Line 5-60), the source being of a VCSEL type having a numerical aperture and cavity outlet compatible with a confocal system (Col 12 Line 65- Col 14 Line 15 (How fiber-based system is setup) along with Col 18 Line 50 – Col 19 Line 60), a tight window at the outlet to come into contact with the specimen for index matching (Col 25 Line 15-65, Col 15 Line 45- Col 16 Line 10), that window having refractive power function on the focused beam, and finally processing means for processing the emitted signal and reconstructing a confocal image of an imaged field (Col 24 Line 40- Col 25 Line 15).

Seibel does not fully disclose a true Euclidian translation along a chosen displacement, as the design is capable of rotational (2-axis) motion, rather than just along one axis. Attention is then paid to the secondary reference by Barbato et al which distinctly describes the use of MEMs components with optical means for translation along both the x and y axes independently (both parallel and perpendicular to the optical path) (0036-0037). It would have been obvious to one of ordinary skill in the art to have included such an adjustable optical means of Barbato et al in the device of Seibel to have allowed for a focused modification of the optical head in one direction while preventing further distortion of the optical elements.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joel M. Lamprecht whose telephone number is (571) 272-3250. The examiner can normally be reached on Monday-Friday 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/
Primary Examiner, Art Unit 3737

/Joel M Lamprecht/
Examiner, Art Unit 3737